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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10:098,585 | 03/15/2002 | Markus Duelli | 18-3 US | 3242 |

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EXAMINER

WOOD, KEVIN S

ART UNIT PAPER NUMBER

2874

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/098,585

Applicant(s)

DUELLI ET AL.

Examiner

Kevin S Wood

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 7-19 are subject to restriction and/or election requirement.

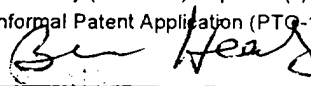
Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: 

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-6, drawn to a fiber optic coupling assembly, classified in class 385, subclass 49.
 - II. Claims 7-19, drawn to a process for coupling optical fibers, classified in class 65, subclass 406.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process, such as using ferrules and/or adhesives.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

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5. During a telephone conversation with Charles Wands on 8/28/03 a provisional election was made with traverse to prosecute the invention of I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

6. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 22b, 24, 40, 41, 41a, 42a. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 recites the limitation "the single mode optical fiber" in next to last line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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12. Claims 1 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,542,665 to Reed et al.

Referring to claim 1, Reed et al. discloses a fiber-optic optical coupling assembly including: a first optical waveguide (13) having a first terminal end; a second of graded index fiber (11'), wherein the first terminal end of the graded index fiber is in optical communication with the first terminal end of the first optical waveguide whereby an optical beam propagating from the first terminal end of the first optical waveguide and exiting the second terminal end of the graded index fiber is reduced to a diameter (waist) at a distance from the terminal end of the graded index fiber. Reed et al. does not appear to specifically disclose the diameter of the beam is less than 30 microns at a distance greater than 220 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the assembly to have a specific beam waist at a specific distance, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. See Fig. 4A and Fig. 4B, along with their respective portions of the specification.

Referring to claim 4, Reed et al. discloses a fiber-optic optical coupling assembly including: a first optical waveguide (13) having a first terminal end; a second of graded index fiber (11'), wherein the first terminal end of the graded index fiber is in optical communication with the first terminal end of the first optical waveguide whereby an optical beam propagating from the first terminal end of the first optical waveguide and exiting the second terminal end of the graded index fiber. Reed et al. does not appear

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to specifically disclose that the graded index fiber has an index of refraction gradient characterized by a change in refractive index of less than about 0.009 over a core diameter of about 80 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the graded index fiber to have a suitable index of refraction gradient over a certain core diameter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. See Fig. 4A and Fig. 4B, along with their respective portions of the specification of the Reed et al. reference.

Referring to claim 5, Reed et al. discloses that the graded index fiber (16) has an angle cleaved at an angle of 2 degrees. See col. 2, lines 59-66.

Referring to claim 6, Reed et al. does not appear to disclose an anti-reflection coating at the second terminal end of the gradient index fiber. Anti-reflection coatings are known in the art and are commonly used to minimize optical losses. It would have been obvious to one having ordinary skill in the art to utilize an anti-reflection coating on the graded index fiber to minimize optical losses due to reflection.

13. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,542,665 to Reed et al. in view of U.S. Patent No. 6,594,419 to Ukrainczyk et al.

Referring to claims 2 and 3, Reed et al. discloses that a thin glue layer may be used between the waveguide (36) and the graded index fiber (43). However, Reed et

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al. does not specifically disclose that the glue is index matching. Ukrainczyk et al. discloses a similar coupling assembly where an index matching epoxy is placed between a waveguide (2) and a graded index fiber (4) for the purpose of attaching the two waveguides together. Since Reed et al. and Ukrainczyk et al. are both from the same field of endeavor, the purpose disclosed by Ukrainczyk et al. would have been recognized in the pertinent art of Reed et al. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize an index matched epoxy spaced between the waveguide and the graded index fiber for the purpose of attaching the waveguide to the fiber and limiting optical losses. See Fig. 4 and its respective portion of the specification of the Ukrainczyk et al reference.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S Wood whose telephone number is (703) 605-5296. The examiner can normally be reached on Monday-Thursday (7am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B Bovernick can be reached on (703) 308-4819. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 307-0956.

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KSW

Ben Healy

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